REMARKS

The Office action of February 3, 2004 has been received and its contents carefully noted.

Claims 1, and 3-12 are pending in the application. Claims 1, 5, 7, 9, and 11 have been amended.

Claims 1, and 3-12 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over Nakajima (JP 012420074A). Also, Claims 1, and 3-12 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over Nishihara (U.S. Patent No. 6,219,403). Applicants respectfully traverse these rejections, and request allowance thereof in the continuation prosecution application for the following reasons.

Substance of Examiner Interview

Applicant acknowledges with appreciation the courtesy extended to Applicants' representative by the Examiner during the interview conducted on March 19, 2004.

Applicant and Examiner discussed the patentability of the claims in view of the prior art cited, Nakajima and Nishihara. The examiner maintained the rejection of the last office action mailed February 3, 2004 for the claims.

In response to the maintained rejection, representative suggested claim amendments relating to amending the claims to clarify that the recited fixed, irradiation target imaging means is

unmovable in a lateral direction, and clarifying that the recited irradiation system performs irradiation in accordance with a modified treatment plan. In response to these suggestions, the Examiner mentioned that these suggested amendments should overcome the current claim rejections based on the cited art.

Also, representative agreed to amend the claims to change "placing" to "positioning" for consistency.

Representative has amended the claims in accordance with these amendment suggestions.

The Claims are Patentable Over the Cited References

Claims 1, and 3-12 are not anticipated by Nakajima

Claims 1, and 3-12 stand rejected under § 102(b) in view of Nakajima. Applicants strongly contend that Nakajima fails to disclose the features recited in these claims as amended such as a fixed, unmovable in a lateral direction, irradiation target imaging means for non-invasively taking images of an irradiation target region including an irradiation target, and wherein a position and direction measuring means measures positions and directions of a irradiation target positioning means, said irradiation target imaging means, and an irradiation means in a 3D coordinate system.

Nakajima does not disclose this patentably distinct feature of a fixed, unmovable in a lateral direction, irradiation target imaging means for non-invasively taking images of an irradiation

target region including an irradiation target. In direct contrast, Nakajima (as described in Kunieda) solely discloses a necessarily movable (in a lateral direction) X-ray camera input device that moves along the x-axis to pick up updated images of the diseased region in the patient. Specifically, Nakajima disclosure describes "...values of the diseased part S of the patient in the initial position A of the X-ray tube and the position B after the parallel displacement are respectively shown by S1 and S2...the X-ray tube and the image intensifier are simultaneously moved in parallel with each other by the distance in the X-axis direction on the supporting frame rails..." (see Kunieda; col. 1, lines 63-66; col. 2, lines 11-14). Furthermore, Kunieda states "...when the three-dimensional coordinates are calculated, it is necessary to move the X-ray TV camera input device every time." (see Kunieda; col. 2, lines 54-56).

Thus, in direct contrast to the recited feature of a fixed, unmovable in a lateral direction, irradiation target imaging means, the invention of Nakajima must use a movable (in a lateral direction) X-ray TV camera input device to accurately compute the updated position of the diseased region within the patient. Therefore, it is clear that Nakajima does not disclose and strongly teaches away from the recited feature making the claimed invention patentably distinct and non-obvious from this cited reference.

Claims 1, and 3-12 are not anticipated by Nishihara

Claims 1, and 3-12 stand rejected under § 102(e) in view of Nishihara. Applicants strongly contend that Nishihara fails to disclose the features recited in these claims as amended such as an irradiation condition correcting means for obtaining position and direction of the irradiation target region in the images using computation results of said position and direction measuring means and compared results obtained by comparing the irradiation target regions in the images successively taken, including at least a first image and a second image taken after said first image and shortly before irradiation of the target, by said irradiation target imaging means, and for correcting the irradiation conditions in which the obtained position and direction is reflected by modifying an irradiation plan initially generated from said first image, and a control means for controlling the radiation to the irradiation target region in response to the irradiation conditions obtained as a result of the correction by said irradiation condition correcting means in accordance with the modified irradiation plan.

Nishihara does not disclose this patentably distinct feature of a correcting means comparing images including a first image and a second image taken after said first image and shortly before irradiation of the target, and correcting the irradiation conditions by modifying an irradiation plan initially generated from said first image, and a control means for controlling the

radiation in accordance with the modified irradiation plan.

In direct contrast, Nishihara solely discloses a radiation therapy method to eliminate deterioration in precision of the therapy plan that makes absolutely no mention of using successive images including a first image and a second image taken after said first image and shortly before irradiation of the target, and correcting the irradiation conditions by modifying an irradiation plan initially generated from said first image, and a control means for controlling the radiation in accordance with the modified irradiation plan as recited. Nishihara only mentions obtaining an initial therapy plan using a radiation therapy planning CT system 31 to generate a radiation treatment plan using multiple pieces of planning data K1 through Kn. (see FIGs. 7-8; col. 9, lines 31-40; col. 10, lines 30-34).

Therefore, Nishihara takes multiple pieces of image data to generate a therapy plan during a therapy planning period, and then proceeds with target irradiation based on the one, original therapy plan. In contrast to this one, unmodified plan approach disclosed by Nishihara, the claimed invention includes using a first image and a second image taken after said first image and shortly before irradiation of the target, and correcting the irradiation conditions by modifying an irradiation plan initially generated from said first image, and a control means for controlling the radiation in accordance with the modified irradiation plan.

Applicants strongly contend that preparing a single, unmodified radiation treatment plan as disclosed by Nishihara is significantly different from using a first image and a second image taken after said first image and shortly before irradiation of the target, correcting irradiation conditions by modifying an irradiation plan initially generated from said first image, and a controlling the radiation in accordance with the modified irradiation plan as recited.

Therefore, it is clear that Nishihara does not disclose and strong teaches away from the recited feature making the claimed invention patentably distinct and non-obvious from this cited reference.

Conclusion

In view of the amendments and remarks submitted above, it is respectfully submitted that all of the remaining claims are allowable and a Notice of Allowance is earnestly solicited.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayments to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

The Examiner is invited to contact the undersigned at (703) 205-8000 to discuss the application.

Respectfully submitted,

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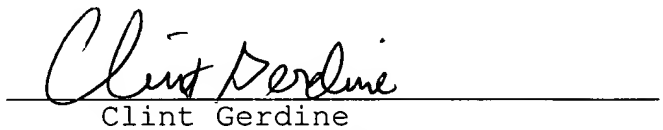
By 

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